

**EXHIBIT B**



SLOAN VALVE COMPANY  
10500 Seymour Avenue  
Franklin Park, IL 60131-1259

## NEW CONCEPT DISCLOSURE

Project No.: NP99145

Case No.:

**THE INFORMATION CONTAINED  
HEREIN IS CONFIDENTIAL AND  
PROPRIETARY TO THE  
SLOAN VALVE COMPANY.**

# SLOAN NEW CONCEPT DISCLOSURE

## SLOAN VALVE COMPANY

FRANKLIN PARK, ILLINOIS 60131

Case No.:	Date Received:	Received By: <i>Peter Jahrling</i>
I. Invention Title: Radio Communicating: Sensors, Control board and Actuators For Control Of Water.		
II. Inventor (s)		
A.	Name: Jerome M. Gauthier	Signature: <i>Jerome M. Gauthier</i>
	Street Address: 510 Glenmore Place	
	City: Roselle	State: IL Zip: 60172
	Title: Engineer	Department: Design Engineering
	Supervisor: Peter Jahrling	Date:
B.	Name: Nhon T. Vuong	Signature: <i>Nhon T. Vuong</i>
	Street Address: 2061 Queensbury Court	
	City: Lombard	State: IL Zip: 60148
	Title: Engineer	Department: Research And Development
	Supervisor: Peter Jahrling	Date:
C.	Name:	Signature:
	Street Address:	
	City:	State: Zip:
	Title:	Department:
	Supervisor:	Date:
DO NOT WRITE BELOW THIS LINE (BOARD USE ONLY)		
Patent Review Board Decision <input type="checkbox"/> Accept <input type="checkbox"/> Decline		
Comments:		
Reviewed By: <i>Charles A. Lee</i> Date:		

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### III The objective of the invention.

#### A. What does it accomplish?

- 1) This invention removes the physical connection of a sensor to an actuator by such means as a piece of wire, common control board, etc.
- 2) This invention allows more freedom of placement of the sensor, control board and actuator.
- 3) This invention allows for one or more sensors to request activation, via the control board, of an actuator if desired. The control board determines if the request shall be acted upon.
- 4) This invention allows for one or more actuators to be activated by a sensor, if desired.
- 5) The sensor type is independent of the actuator type.
- 6) A mixture of sensor types can request an actuation from the same actuator.
- 7) Makes installation easier.
- 8) Built in acknowledgment of communication signal via indicator lamp.
- 9) The Control board supplies the intelligence for determining if an actuator will operate.
- 10) The Control board, can determine how many and when an actuator will operate.

#### B. What is its purpose?

- 1) The purpose of this invention is to remove the physical connection of a sensor to an actuator, such as piece of wire, common control board, etc.
- 2) Another purpose of this invention is to allow more freedom of placement of the sensor and actuator.
- 3) The indicator lamps will help with maintenance trouble shooting of the sensor and valve activators while in the field.

#### C. Why is it unique?

- 1) This invention is unique because there is no physical connection between the sensor and the actuator.
- 2) The communication between the sensor and actuator can occur through walls, without the need of cutting a hole in the wall.
- 3) The invention allows the actuator to be placed anywhere within communication distance of the sensor.

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### **D. Circumstances which led to idea?**

In the plumbing industry, valves must be close to the fixture so the user can actuate an activating mechanism, such as a push button or electronic device. In cases where a valve is placed behind a wall, a hole must be made in order to connect to the sensor element, push button or electronic device.

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IV. The objective of the invention.... What does it accomplish?

A. Sketch showing the concept:

- 1) See Attachment titled: Intelligent Wireless Radio Communication for General Water Control of Faucets, Showers, Urinals and Flush valves.

Inventor:	<i>Jerome M. Gauthier</i>	Date:	
Inventor:	<i>Whon T. Vuong</i>	Date:	
Inventor:		Date:	
Witnessed & Understood:	<i>[Signature]</i>	Date:	
Witnessed & Understood:	<i>[Signature]</i>	Date:	
B. Attach photocopies of "original" sketches and/or description. Be sure signatures of inventor (s) and witnesses are provided.			

## SLOAN NEW CONCEPT DISCLOSURE

V.	Invention status		
A.	Date invention was conceived:		
B.	Date first sketch or drawing made:		
C.	Has it been constructed?	YES	
D.	Has it been tested?	YES	
E.	Has it been used experimentally?	NO	
F.	Has it been put into production?	NO	
G.	Has it been sold as a product?	NO	
H.	Reference Sloan Project File Number	NP99145	

Note: Attach photocopies of all supporting documents that would establish the above dates such as; invoices, memos, letters, drawings, test results, work orders, purchase orders, etc.

### VI. List any anticipated problems

- 1) Cannot communicate through grounded ferrous metals.
  - a) Possible work around with radio repeaters.
- 2) Multiple sensors transmitting at the same may corrupt the radio signal.
- 3) Other radio sources may corrupt the radio signal.
- 4) Relatively short transmission and receive range limit.
  - a) Possible work around with radio repeaters.

## **SLOAN NEW CONCEPT DISCLOSURE**

VII. Why do you believe it is better than current device or process?

Explain:

- 1) This invention allows the valve to be placed independent of where the sensor is located.
- 2) Installation is made easier; no holes have to be punched through the wall.
- 3) The sensor can be placed as desired.
- 4) There is more flexibility with regard to sensor choices for a valve.  
You can mix and match a sensor type, via the control board, to a valve actuator.

VIII. Provide any information available on similar devices or processes (prior art).

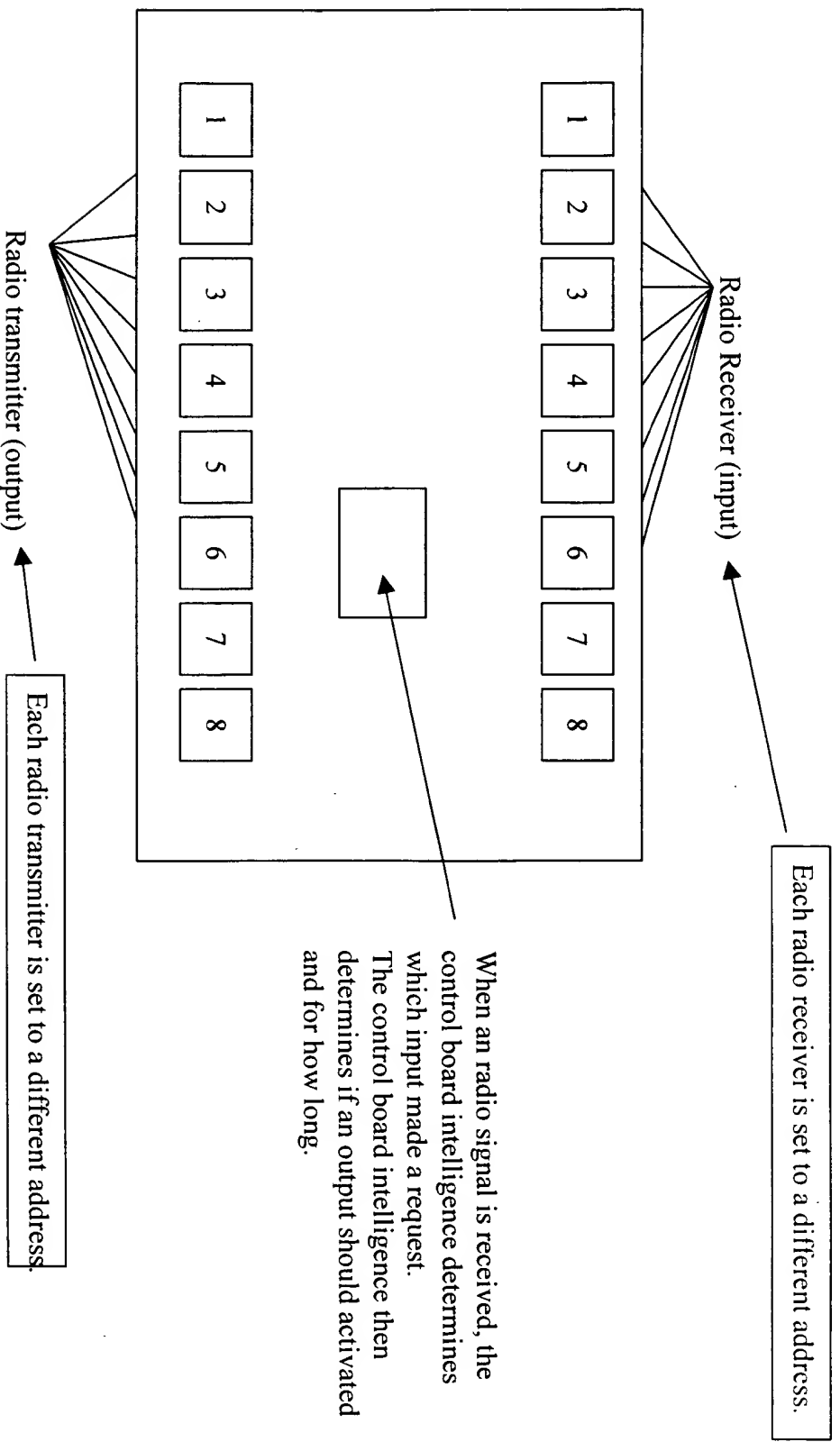


**Intelligent Wireless Radio Communication  
for General Water Control of Faucets, Showers,  
Urinals and Flush valves.**

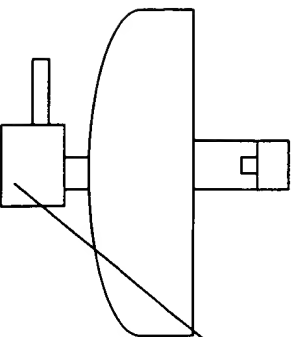
**By: Jerome M. Gauthier  
Date**

**Inventors: Jerome M. Gauthier  
Nhon Young**

# Control board:

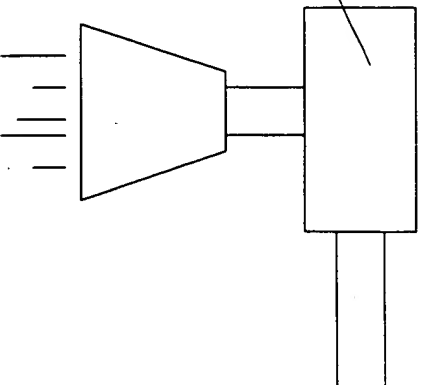


# Other Components to be used:

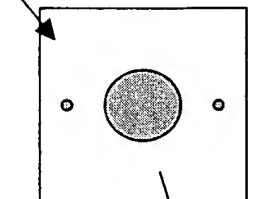


**Radio Receiver.**  
When the correct address is received, the electronics will activate the solenoid to allow water flow out of the faucet.

**Radio Receiver.**  
When the correct address is received, the electronics will activate the solenoid to allow water flow out of the Shower head.

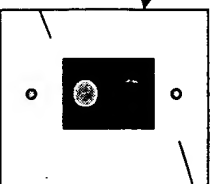


Can be battery powered and/or hard wired.



**Radio transmitter,**  
when button is pressed, an address is transmitted.

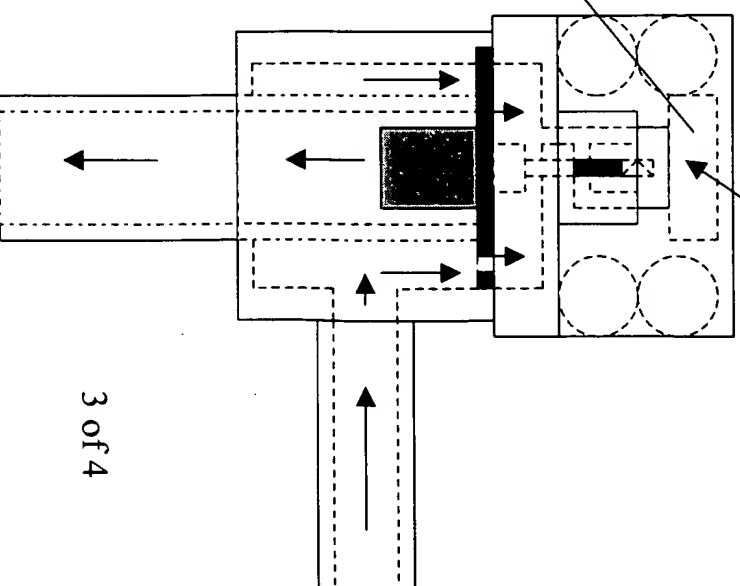
Battery powered and/or hard wired.



**Infrared sensor with Radio transmitter.** For water closets, when a valid target is detected and the target leaves, an address is transmitted.

**Infrared sensor with Radio transmitter.** For faucets and showers, when a valid target is detected an address is transmitted.

**Radio Receiver.**  
When the correct address is sent, the electronics will activate the solenoid to start a flush cycle.



# Example of radio input and output addresses:

Remotely mounted control board

Input - Decimal Address:	Output - Decimal Address:
1 - 100	1 - 200
2 - 110	2 - 210
3 - 120	3 - 220
4 - 130	4 - 230
5 - 140	5 - 240
6 - 150	6 - 250
7 - 160	7 - 260
8 - 170	8 - 270

Radio Receiver (input)

12345678

12345678

Radio transmitter (output)

